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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/807,830 | 03/24/2004 | Brian Taggart | ITL.1119US (P18791) | 4317 |
| 21906 | 7590 | 01/04/2005 | EXAMINER | |
| TROP PRUNER & HU, PC 8554 KATY FREEWAY SUITE 100 HOUSTON, TX 77024 | | | LEE, CALVIN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2825 | |

DATE MAILED: 01/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/807,830 | TAGGART et al. | |
| | Examiner | Art Unit | |
| | Lee Calvin | 2825 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-29 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 24 March 2004 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

OFFICE ACTION

Drawings

1. Figure 1 is objected to as failing to comply with 37 CFR 1.84(p)(5) because it does not include an encapsulant **36** mentioned in the description, page 2.

The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 U.S.C. § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the U.S.
(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Note: This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a)

3. Claims 11-12 and 16-19 are rejected under 35 U.S.C. 102(b) as anticipated by *Kinsman*.

Since *Kinsman* (US 6,172,419) discloses an organic epoxy-glass resin substrate **102** [col. 4], *Kinsman* inherently teaches or suggests a flexible package having a flexible substrate. Moreover, *Kinsman* discloses a low profile ball grid array package, and its method comprising the steps of:
-forming a cavity **114** in the flexible package having the substrate **102** and a polyimide thin layer **116**, wherein a semiconductor die **120** is secured within the cavity [Fig. 2]
-forming a wiring **124** from the package to the die and solder balls **128** coupled thereto [Figs. 2-3]

4. Claims 11-12, 16-20, 23-24, and 28-29 are rejected under 35 U.S.C. 102(b) as anticipated by *Manteghi* (US 6,177,726).

Since *Manteghi* discloses a polyimide substrate **46** [col. 4], *Manteghi* inherently teaches or suggests a flexible package having a flexible substrate. Its formation method comprises of:
-forming over the flexible substrate a layer having a cavity where a die **40** is secured within
-forming a wire bonding **56** from the package to the die
-forming solder balls **74, 75** coupled underneath the substrate [Fig. 13]

5. Claims 1-29 are rejected under 35 U.S.C. 102(e) as anticipated by *Eslamy* (US 6,784,536).

Since *Eslamy* discloses a polyimide substrate [col. 1], *Eslamy* inherently teaches or suggests a flexible package having a flexible substrate. Its formation method comprises of:

-forming a cavity **38** in at least two buildup layers over the flexible substrate **32** [see col. 3, ln.2, "a multi-layer organic substrate"] within which a semiconductor die **40** sits [col. 3, ln.10]

-forming a wiring **42** from the package to the die and solder balls **70** coupled thereto [Figs. 1-2]

Contact Information

6. Any inquiry concerning this communication from the Examiner should be directed to *Calvin Lee* at (571) 272-1896 from 7:00 to 17:00 (Monday-Thursday, Eastern Time). If attempts to reach the examiner by telephone are unsuccessful, Art Unit 2825's Supervisory Patent Examiner *Matthew Smith* can be reached at (571) 272-1907.

Any inquiry relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0596. The central fax number is (703) 872-9306 for all communications to be entered (e.g., amendments, remarks, IDS, etc)

C. Everhart
CARIDAD EVERHART
PRIMARY EXAMINER

CL
December 28, 2004